GEOTECHNICAL ENGINEER	ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 29869 ENGINEER SHANE C CLARK DocuSigned by: Shane C. Clark 7/15/2015 1F4E87E6D6AD4EA...	
SIGNATURE DATE	SIGNATURE DATE

NOTES:

FOR MECHANICALLY STABILIZED EARTH (MSE) RETAINING WALLS No. 1, 3, and 5, SEE MECHANICALLY STABILIZED EARTH RETAINING WALLS PROVISION.

FOR STEEL BEAM GUARDRAIL, SEE ROADWAY PLANS AND SECTION 862 OF THE STANDARD SPECIFICATIONS.

A FENCE OR HANDRAIL IS REQUIRED BEHIND RETAINING WALLS No. 1, 3, and 5. SEE ROADWAY PLANS FOR DETAILS.

AT THE CONTRACTOR'S OPTION FOR WALLS No. 1, 3, and 5, USE AN MSE WALL SYSTEM WITH PRECAST CONCRETE PANELS THAT MEET SECTION 1077 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS OR A MSE WALL SYSTEM WITH SRW UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS FOR RETAINING WALLS.

WHEN USING AN MSE WALL SYSTEM WITH SEGMENTAL RETAINING WALL (SRW) UNITS FOR RETAINING WALLS, FREEZE-THAW DURABLE SRW UNITS THAT MEET ARTICLE 1040-4 OF THE STANDARD SPECIFICATIONS ARE REQUIRED.

IF SRW UNITS ARE USED FOR RETAINING WALLS, USE SRW UNITS WITH A GRAY COLOR WITH AND A TEXTURED FACE.

A DRAIN IS REQUIRED FOR RETAINING WALLS.

BEFORE BEGINNING MSE WALL DESIGN FOR RETAINING WALL No. 1, 3, and 5, SURVEY WALL LOCATIONS AND SUBMIT A REVISED WALL PROFILE VIEWS (WALL ENVELOPES) FOR REVIEW. DO NOT START WALL DESIGN OR CONSTRUCTION UNTIL THE REVISED WALL ENVELOPES ARE ACCEPTED.

DESIGN RETAINING WALL NO. 1 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT + EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) MAXIMUM FACTORED VERTICAL STRESS ON FOUNDATION MATERIAL = 2750 LB/SF
4) MINIMUM REINFORCEMENT LENGTH (L) = 7 FT

DESIGN RETAINING WALL NO. 3 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT + EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) MAXIMUM FACTORED VERTICAL STRESS ON FOUNDATION MATERIAL = 2660 LB/SF

DESIGN RETAINING WALL NO. 5 FOR THE FOLLOWING:
1) H = DESIGN HEIGHT + EMBEDMENT
2) DESIGN LIFE = 100 YEARS
3) MAXIMUM FACTORED VERTICAL STRESS ON FOUNDATION MATERIAL = 2630 LB/SF

AGGREGATE PARAMETERS FOR WALLS 1, 3, and 5:

AGGREGATE TYPE*	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) LB/SF
COARSE	110	38	0
FINE	125	34	0
*SEE MSE RETAINING WALLS PROVISION FOR COARSE AND FINE AGGREGATE MATERIAL REQUIREMENTS.			

7) IN-SITU ASSUMED MATERIAL PARAMETERS:

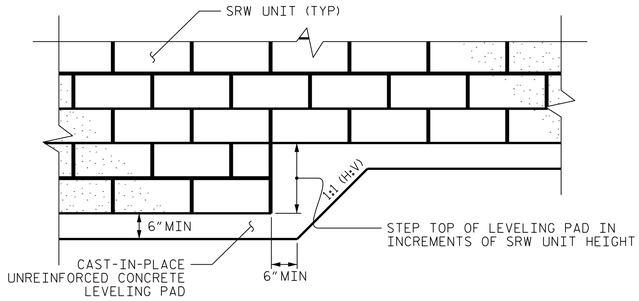
MATERIAL TYPE	UNIT WEIGHT (γ) LB/CF	FRICTION ANGLE (ϕ) DEGREES	COHESION (c) LB/SF
BACKFILL	120	32	0
FOUNDATION	120	32	0

DESIGN RETAINING WALL No. 1, 3, and 5 FOR A LIVE LOAD (TRAFFIC) SURCHARGE.

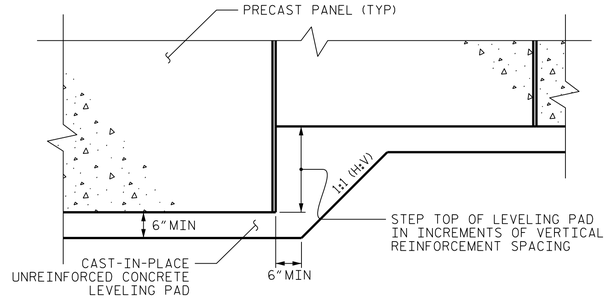
EXISTING OR FUTURE OBSTRUCTIONS SUCH AS FOUNDATIONS, GUARDRAIL, FENCE OR HANDRAIL POSTS, PAVEMENTS, PIPES, INLETS OR UTILITIES MAY INTERFERE WITH REINFORCEMENT FOR RETAINING WALL No. 1, 3, and 5.

DO NOT PLACE LEVELING PAD CONCRETE, AGGREGATE OR REINFORCEMENT FOR RETAINING WALL No. 1, 3, and 5 UNTIL EXCAVATION DIMENSIONS AND FOUNDATION MATERIAL ARE APPROVED.

AT THE CONTRACTOR'S OPTION, "TEMPORARY SHORING FOR WALL CONSTRUCTION" MAY BE USED TO CONSTRUCT RETAINING WALL No. 1, 3, and 5. SEE MSE RETAINING WALLS PROVISION FOR TEMPORARY SHORING FOR WALL CONSTRUCTION.



SEGMENTAL RETAINING WALL (SRW) UNITS OPTION



PRECAST CONCRETE PANELS OPTION

LEVELING PAD STEP DETAIL OPTIONS

PREPARED BY: EJS	DATE: 1/15
REVIEWED BY: SCC	DATE: 1/15

PROJECT NO.: B-5136
CABARRUS ***COUNTY***
STATION: VARIES
SHEET 6 OF 6

GEOTECHNICAL ENGINEERING UNIT
☐ ***EASTERN REGIONAL OFFICE***
☒ ***WESTERN REGIONAL OFFICE***
☐ ***CONTRACT OFFICE***
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

MSE
RETAINING WALL
WALLS #1, #3, AND #5

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	W-6
1			3			TOTAL SHEETS
2			4			13